



2015 AGC Colorado ACE Awards

Category: 05 – Best Building Project – Specialty Contractor (\$2-\$6 Million)

Contractor: Murphy Company

Project Name: Breckenridge Brewery

Murphy Company felt privileged to have the opportunity to contribute to the unique Colorado craft beer culture and our local economy with the building of the new Breckenridge Brewery in Littleton, CO. They enjoyed working with people they have built long term relationships with and to bringing their unique Project Management and Design/Assist team approach to the project. Murphy's role in the project included preconstruction services ranging from budgeting, engineering assistance, value engineering, project planning and partnering with general contractor Hyder Construction, Breckenridge Brewery, and their vendors to provide a complete integration of all mechanical and process systems. Scope of work included HVAC systems, underground and above ground plumbing, process low temperature cooling water, process compressed air, process steam, gas piping, brewhouse process beer piping, malt conveyor systems and tanks, setting of fermentation tanks, bright tanks and brew vessels, building and placement of catwalks, and assistance in facilitation of all piping elements for the onsite waste water treatment system. Murphy Company delivered a finished product safely, on-time and on-budget, allowing Coloradoans and tourists the pleasure of enjoying a state of the art brewery and restaurant for years to come.

Since 1907, Murphy Company has taken a glass half full, or in this case a pint half full, approach to solving project challenges with workable solutions. The Breckenridge Brewery project was no exception. Murphy Company's positive can-do attitude and creative thinking led to solutions that overcame major obstacles on the nearly 400,000 square foot project. The challenges confronted and solved included concurrent construction of the brewhouse, restaurant, and

production building, storage and planning for each of the project elements, placing and connecting the many interior elements of the project before the exterior building structure was complete and staying within the owner's budgetary constraints while taking on additional scope of work.

Murphy Company management and execution team took a proactive preconstruction approach six months prior to start of construction on the project - to plan the work and work the plan to perfection. They worked directly with the owners group, Hyder Construction, Kronos - a German worldwide brewhouse equipment and systems manufacturer, along with additional trades to solve the challenge of staying within budget, accommodating additional scope of work, managing and coordinating on-site logistics and creating solutions to complete the project as required.

One major challenge that required an innovative solution involved the setting of large vessels, ranging from 20 feet to 38 feet tall, including 16 fermentation tanks and 4 bright tanks in the production building and 7 brew vessels in the brewhouse. Due to the size of the vessels, the final framing and building structure needed to be erected around the vessels after they had been set. After the vessels were set in place, other mechanical piping and insulation was completed by Murphy Company, including inter-connecting catwalks for the vessels and coordination with remaining structural steel and roofing. Especially challenging was the setting of each fermentation tank on the south side of the production building, which included setting the tank, coordination of the installation with fire protection and electrical, and setting into place the steel and insulation before the next tank could be installed. This also included the scheduling 20 different semi-trucks loaded with materials over a two week span.

The solutions to many of the challenges were identified by Murphy Company using BIM/3D modeling to recognize the tank setting difficulties which highlighted trade conflicts, spatial issues and scheduling requirements to perform the work. These schedules were changed and re-evaluated on a daily and weekly basis to accommodate the flow of construction. Numerous coordination and scheduling meetings were held with Fire & Safety, Electrical, Roof Framers, Steel Workers, deliveries, dispatchers, trucking companies and crane operators. These meetings

were instrumental in staging every element down to a strict hour by hour schedule and led to positive modifications of the original contract documents to benefit the owner, saving both time and money.

Solutions to the challenge of staying within budget, timeline and quality requirements included convincing Krones of the viability of prefabricating the brewery piping systems. Krones' previous experience around the world with other subcontractor's prefabrication work had not been favorable due to unacceptable quality and rework required on the site. The team at Murphy Company convinced the German firm and their on-site supervisors of the merits of Murphy Company's prefab products which include cost-savings, time-savings, high quality work, and valuable on-site space savings gained by utilizing their offsite prefab shop. This enabled them to minimize the effect of working in the adverse weather conditions that existed for the duration of this project and complete 75% of the work by prefabrication.

Murphy Company came through with state of the art prefab solutions on all levels. They added a second shift in their fabrication shop to accommodate the project timeline to meet the date for first brew. The prefabrication of materials yielded cost savings and allowed valuable space on the jobsite to work and function more efficiently and safely in the congested conditions. The quality of the Murphy Company prefab "exposed to view" brewery piping fulfilled the desired brewhouse aesthetics needed for their brew tours - critical to Breckenridge Brewery from a marketing and sales perspective.

Murphy Company was instrumental in meeting the schedule and coordination challenge of building three structures concurrently – the production building, brewhouse and restaurant, on a building site that had space limitations. Additional issues requiring solutions included the staging and storage for thirteen of Krones 45 foot long shipping containers that needed to be stored on-site for several months prior to implementation. With the majority of the construction activity occurring from late September through early March, the elements of snow, rain and mud also presented challenges that had to be overcome.

With an aggressive schedule and a space restricted construction site, Murphy Company took a proactive role in planning and staging the various aspects of this project. They worked closely with Hyder Construction, to create a fluid logistics plan. Their preconstruction team assisted in creating value-added solutions to help keep the project on schedule and on budget. Murphy Company established on-site equipment staging areas that allowed for egress and access to the various structures, accommodating the building of roads and parking lots, and coordinating equipment and material delivery schedules. Murphy Company provided solutions for the various project challenges while delivering a perfect safety record with nearly 30,000 man-hours without an accident on the project. They achieved this exemplary safety record through daily pre-task planning meetings with the tradesmen, weekly safety meetings, and creating critical lift plans assuring employee and contractor safety. Their foremen also took a proactive approach on a regular basis to assess and re-assess safety challenges, with much of the work being performed by their tradesmen 30 to 40 feet in the air throughout the project.

Murphy Company is sensitive to the owner's concern for environmental issues. They installed an air-emissions scrubbing system to the brewing equipment vent systems to reduce odor emissions to the surrounding area. Process waste systems from the brewhouse and production buildings were installed to an underground holding tank for processing by the Breckenridge Brewery waste water treatment system. Due to the amount of waste from byproducts of the beer making process – malt, barley and yeast – the creation of an on-site waste water treatment system was very important. Once treated, the water is sent to holding tanks where it is available for onsite irrigation and, depending on the volume, is sent back into usable irrigation water for the City of Littleton. Murphy Company also installed piping from the brewhouse to the spent grain silo. Spent grain used during the brewing process goes to the on-site storage silo where it is then utilized by local Colorado farmers for livestock.

Murphy Company Project Manager Terry Ross and Preconstruction Manager Doug Geist, along with the entire Murphy Company team take great pride in providing solutions that met the expectations on the Breckenridge Brewery project. They are proud to contribute to the unique Colorado craft beer culture and the economic well-being of Colorado. Cheers!











